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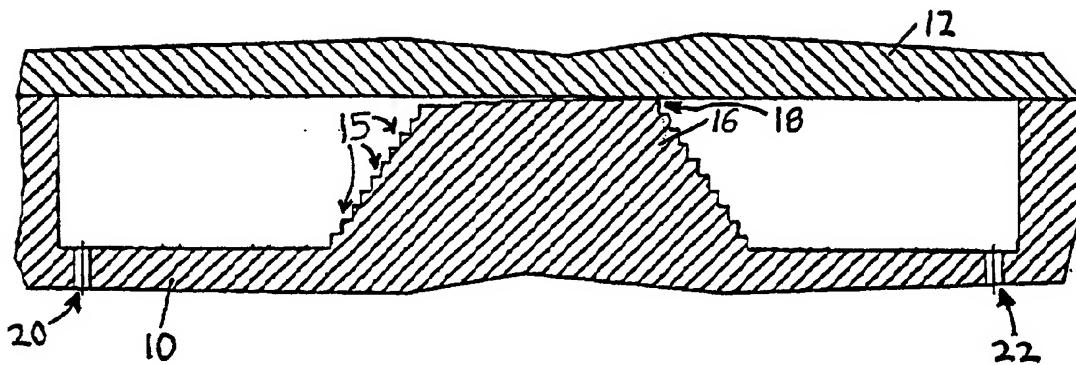
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(71) Applicants and

(72) Inventors: HVICHIA, Georgi [US/US]; 10640 Lockart  
Road, Philadelphia, PA 19116 (US). GASPARINI, Paolo  
[IT/IT]; Via Castel Gonnelle, I-25030 Brandico (IT).(88) Date of publication of the international search report:  
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(57) Abstract: The invention relates to microscale cell separating apparatus which are able to separate cells on the basis of size of the cells, interaction of the cells with surfaces of the apparatus, or both. The apparatus comprises a stepped or sloped separation element (16) interposed between an inlet region (20) and an outlet region (22) of a void that can be filled with fluid. The void can be enclosed within a cover (12) and fluid flow through the void engages cells with the separation element. Only cells which have (or can deform to have) a characteristic dimension smaller than or equal to the distance between a step and the cover or body can pass onto or past a step. Modifications of surfaces within the apparatus can also inhibit passage of cells onto or past a step.